Spearman Univariate Correlation Coefficients

All results are non-significant except as indicated * p<0.05 ** p<0.01 *** P<0.001	Maximum VO2 Normalized for Body Mass	Anaerobic Threshold	Treadmill Exercise Time
LA Volume-Normalized	-0.50**	-0.60***	-0.45**
Diastolic Septal Thickness (MM)	-0.04	0.03	0.08
Septal/Posterior Wall Ratio (MM)	-0.08	-0.11	-0.16
E/A Ratio (Doppler)	0.17	0.34*	0.19
Left Ventricular Mass (MRI)	0.12	0.11	-0.37
Pulmonary Artery Systolic Pressure	-0.50**	-0.27	-0.19
Pulmonary Capillary Wedge Pressure	-0.50**	-0.35*	-0.24
LV End-Diastolic Pressure	-0.30	-0.08	-0.04

1014-67 Long-Term Outcome in Patients With Latent (Provocable) Obstructive Hypertrophic Cardiomyopathy

Maria J. Eriksson, Anna Woo, E. Douglas Wigle, David Focsaneanu, Paul Rakowski, Cairrine Sloggett, Harry Rakowski, Toronto General Hospital, Toronto, ON, Canada

BACKGROUND: Subaortic obstruction in hypertrophic cardiomyopathy (HCM) may be classified as obstruction at rest or latent (LO). There is only limited information on long-term clinical outcome in HCM patients (pts) presenting with LO.
METHODS: A retrospective study of 127 pts (73% male) with LOHCM was performed. Inclusion criteria were: unexplained left ventricular hypertrophy with no outflow gradient (LVOTGR) at rest and >30 mmHg after provocation, documented by echo (n = 72) or catheterization (n = 55). Symptoms, clinical findings, mortality and cardiovascular morbidity were analyzed.
RESULTS: The mean age at diagnosis was 45.1 ± 15.8 years. At baseline the mean LVOTGR at rest was 7±8 mmHg and 64±26 mmHg after provocation. The mean septal thickness was 18.5±3.9 mm, with hypertrophy limited to the basal 1/3 of septum in 74 pts (58%), and to the proximal 2/3 in 37 pts (29%). The mean left atrial diameter was 40±6 mm. Most common symptoms were dyspnea (33%), chest pain (28%) and pre-/syncope (15%). During a follow-up of 12.8±8.3 years from diagnosis cardiovascular mortality was 5.5% (7/127) and annual cardiovascular mortality 0.4%, due to sudden cardiac death (SCD) (n=4), CHF (n=2) and stroke (n=1). SCD pts had more extensive septal hypertrophy. At 15 years of follow-up survival for LOHCM of 88±4% was not different from that for the age- and gender-matched population. Morbid events occurred in 59 pts (46%), the most frequent being atrial fibrillation (28%), cerebrovascular events (12%), myocardial infarction (9%) and CHF (9%). At the last follow-up pts were on beta-blockers (78%), disopyramide (19%) or/and calcium channel blockers (19%). Surgical or chemical myectomy was performed in 14 pts (11%). Seven pts received AICD, for secondary prevention (1) and primary prevention (6). Only left atrial enlargement at baseline and older age at diagnosis were independent predictors of cardiovascular morbidity.
CONCLUSION: The majority of pts with LOHCM have less extensive hypertrophy and a more favorable prognosis than other types of HCM. However, in the presence of extensive hypertrophy, left atrial enlargement and older age at diagnosis, LO does have significant cardiovascular morbidity and mortality.

1014-82 Relation Between Angiotensin-Converting Enzyme II Genotype and Cardiovascular Events in Patients With Hypertrophic Cardiomyopathy

Akiyoshi Ogimoto, Mareomi Hamada, Jun Nakura, Yuji Shigematsu, Yuji Hara, Tomoaki Ohtsuka, Jun Suzuki, Tsuyoshi Matsunaka, Tetsuro Miki, Jitsuo Higaki, Ehime University School of Medicine, Ehime, Japan

Background: The renin-angiotensin system plays a part in the pathophysiology of cardiovascular disease. Many studies showed the benefits of angiotensin converting enzyme (ACE) inhibitors in congestive heart failure. However, ACE inhibition in patients with hypertrophic cardiomyopathy (HCM) was reported to aggravate hemodynamics and lead to hypotension and excessive systolic emptying. The insertion/deletion (I/D) polymorphism of the ACE gene is a marker linked to differences in plasma and cardiac ACE activity and an independent risk factor for several heart diseases. Therefore, the purpose of this study was to examine the relation between the ACE genotypes and the occurrence of cardiovascular events in patients with HCM. Methods and Results: We genotyped the I/D polymorphism of the ACE gene in genetically independent 151 patients with HCM. The cardiovascular events were defined as sudden cardiac death, congestive heart failure, thromboembolism, stroke, syncope, atrial fibrillation and sustained ventricular tachycardia. Patients with one or more history of the cardiovascular events were 65 (43%), and patients without history of the cardiovascular events were 86 (57%). Distribution of the ACE genotypes (DD, ID, and II) among the total patients with HCM was 14%, 46%, and 40%, respectively. The cardiovascular events were documented in 36% with DD, 32% with ID, and 58% with II. Allele frequency for the I allele was 0.71 in the group with the cardiovascular events and 0.56 in the other group. There was a significant difference in genotypes between the two groups by chi-square test (P<0.01). The odds of the cardiovascular events was 3.1-fold higher in patients with the II genotype than in the other genotypes. Conclusion: These findings suggest that the II genotype of the ACE gene is a significant risk factor for the cardiovascular events in patients with HCM.

1014-83 Reduction in Mitral Regurgitation After Alcohol Septal Ablation in Patients With Hypertrophic Obstructive Cardiomyopathy

Fred A. Crawford, III, Christopher Nielsen, Valerian Fernandes, Mary Frankis, William H. Spencer, III, Medical University of South Carolina, Charleston, SC

Background: Mitral Regurgitation (MR) is a common finding in patients with hypertrophic obstructive cardiomyopathy (HOCM). This is thought to be related to systolic anterior motion of the mitral valve. Improvements in MR have been documented in parallel with reduction in left ventricular outflow tract (LVOT) gradient with both dual chamber pacing and with surgical myectomy. In this study, we examined reduction in MR and associated changes in LVOT gradient and treadmill exercise time before and after alcohol septal ablation. **Methods:** We reviewed transthoracic echocardiograms from 40 patients who underwent alcohol septal ablations performed at our institution. Echocardiograms were done before the procedure and in follow-up 3 months after the procedure. In addition to measuring LVOT gradient and treadmill exercise time, we assessed degree of MR by measuring the area of color flow regurgitant jet, ratio of color flow regurgitant jet area to left atrial area, and the peak mitral inflow E velocity.
Results: At baseline, 39 of 40 patients had MR as measured by color flow doppler. There was a significant reduction in MR measured by transthoracic echocardiography at 3 months follow-up. The pre-procedure mean mitral regurgitant jet area was 5.0 cm^2. This decreased to 2.1 cm^2 at 3 months follow-up (p<0.001). The pre-procedure mean mitral regurgitant jet area/ left atrial area was 0.38. This decreased to 0.20 at 3 months follow-up (p<0.001). The pre-procedure mean peak mitral inflow E velocity was 0.87 m/s. This decreased to 0.79 m/s at 3 months follow-up (p<0.05). The pre-procedure mean LVOT gradient was 85.6 mm Hg. This decreased to 26.3 mm Hg at 3 months follow-up (p<0.001). The pre-procedure mean treadmill exercise time was 233.1 seconds. This increased to 361.8 seconds at 3 months follow-up (p<0.001). **Conclusions:** Alcohol septal ablation results in improved LVOT gradient and treadmill exercise time in patients with HOCM. This is associated with a significant reduction in MR. The reduction in MR may be an independent contributing factor to the improvement in exercise time and symptoms noted in these patients.

1014-84 Noninvasive Assessment of Coronary Flow Velocity Reserve Impairment in Patients With Hypertrophic Cardiomyopathy

Massimo Ruscazio, Roberta Montisci, Maurizio Porcu, Rosa Manzi, Luisella Pistis, Norma Zedda, Sabino Iliceto, Luigi Meloni, University of Cagliari, Cagliari, Italy, University of Padua, Padua, Italy

Background.Microvascular impairment occurs frequently in hypertrophic cardiomyopathy patients (HCM), often without evidence of coronary artery stenosis but with impairment of coronary flow velocity reserve (CFVR). We tested the hypothesis that CFVR, noninvasive monitored, can be impaired in HCM and could be related to the severity of cardiac hypertrophy.
Methods. We studied 18 HCM (13 males and 5 females), mean age 51 years (range 16±72 years) and 21 control group patients. We evaluated CFVR in the left anterior descending coronary artery (LAD) with contrast enhanced transthoracic Doppler (CE-TTE) during adenosine infusion. The pulsed wave Doppler of blood flow velocity was recorded in the LAD at rest and after maximum vasodilation by adenosine infusion (140[mu]g/Kg/min in 5 minutes).
Results. In HCM, CFVR was impaired compared to control group (2.3±0.88 Versus 3.29±0.53 , p<0.001). A significantly, greater percentage of HCM had severe reduction of CFVR (<2.0) compared to control group (8/18, 44% Versus 0/21, 0%, p=0.001). Diastolic mean velocity at rest was significantly higher in HCM with reduced CFVR compared both to control group (56.5±18.5 Versus 32.8±15.5 cm/sec, p<0.01) and to HCM with normal CFVR (56.5±18.5 Versus 31.9±6.5 cm/sec, p<0.01). However, diastolic mean velocity during hyperemia was not statistically different between the 2 groups (92±28 Versus 102±30 cm/sec, p=ns) but in HCM with reduced CFVR it was statistically lower when compared to both control group (76.2±22.5 Versus 102±30.4 cm/sec, p<0.05) and HCM with normal CFR (76.2±22.5 Versus 104.5±30.4, p<0.05).Furthermore, HCM with greater cardiac hypertrophy (>20 mm) had CFVR severely reduced in comparison to HCM with less degree of myocardial involvement (2.0±0.8 Versus 2.8±0.8, p<0.05).
Conclusion. This study demonstrated that in HCM, CFVR is significantly impaired because of increased baseline resting diastolic mean velocity resulting in a reduced vasodilatatory capacity and CFVR impairment is related to the degree of cardiac hypertrophy. Noninvasive CEE-TTE assessment of CFVR, could be a simple and reliable method in detecting and monitoring microcirculatory dysfunction in HCM.

1014-85 Injury Size and Location Induced by Percutaneous Transluminal Septal Myocardial Ablation in Hypertrophic Obstructive Cardiomyopathy: Effect on Gradient Reduction

Willem G. van Dockum, Folkert J. ten Cate, Jurrien M. ten Berg, Aernout M. Beek, Jeroen Vos, Mark B. Hofman, Cees A. Visser, Albert C. van Rossum, VU University Medical Center, Amsterdam, The Netherlands

Background: Percutaneous transluminal septal myocardial ablation (PTSMA) reduces left ventricular outflow tract (LVOT) obstruction in patients with symptomatic hypertrophic obstructive cardiomyopathy (HOCM). The purpose of the study was to evaluate by contrast-enhanced magnetic resonance imaging (MRI) the effect of myocardial injury size and location induced by PTSMA on LVOT gradient reduction.
Methods: Twenty-four patients (age 52± 15 years) underwent contrast-enhanced (gadolinium-DTPA) MRI 1 month after PTSMA for assessment of PTSMA induced myocardial injury size. Location of hyperenhanced myocardium was compared with ethanol infused target septal branch, site of balloon inflation and the volume of alcohol administered.